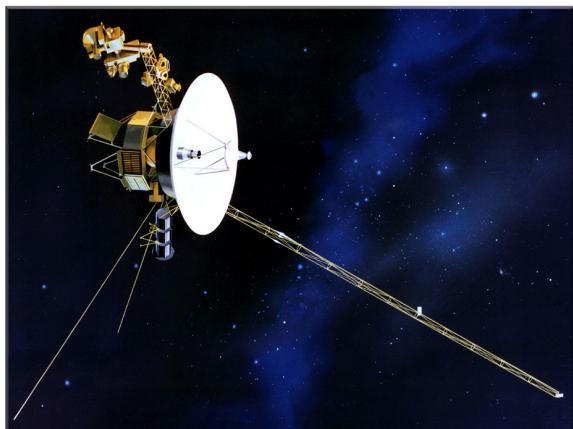


# SRS UPDATE

NEWS FROM THE SAVANNAH RIVER SITE • JULY 2005

## Journey into space: SRS plutonium going strong

Voyager 1 Spacecraft Enters Solar System's Final Frontier



Voyager I deep-space probe.

SRS plutonium is still going strong 27 years later, as NASA's Voyager 1 spacecraft has entered the solar system's final frontier. It is entering a vast, turbulent expanse where the sun's influence ends and the solar wind crashes into the thin gas between stars.

The material powering Voyager 1 and its twin, Voyager 2, was produced in SRS's plutonium facilities.

"Voyager 1 has entered the final lap on its race to the edge of interstellar space," said Dr. Edward Stone, Voyager project scientist at the California Institute of Technology in Pasadena. Caltech manages NASA's Jet Propulsion Laboratory in Pasadena, which built and operates the Voyager crafts.

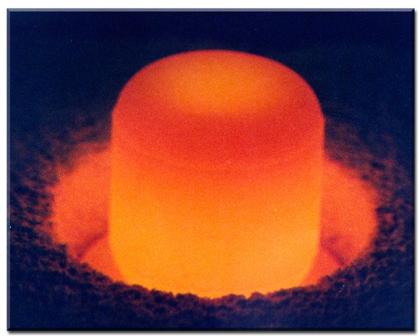
In November 2003, the Voyager team announced it was seeing events unlike any in the mission's then 27-year history. The team believed the unusual events indicated Voyager 1 was approaching a strange region of space, likely the beginning of the new frontier called the termination shock region. There was considerable controversy over whether Voyager 1 had indeed encountered the termination shock or was just getting close. The termination shock is where the solar wind, a thin stream of electrically charged gas blowing continuously outward from the sun, is slowed by pressure from gas between the stars. At the termination shock, the solar wind slows abruptly from a speed that ranges from 700,000 to 1.5 million miles per hour and becomes denser and hotter. The recent consensus of the team is that Voyager 1, at approximately 8.7 billion miles from the sun, has at last entered the heliosheath, the region beyond the termination shock.

The most persuasive evidence that Voyager 1 crossed the termination shock is its measurement of a sudden increase in the strength of the magnetic field carried by the solar wind, combined with an inferred decrease in its speed. This happens whenever the solar wind slows down.

In December 2004, the Voyager 1 magnetometers observed the magnetic field strength suddenly increasing by a factor of approximately 2.5, as expected.

For their original missions to Jupiter and Saturn, Voyager 1 and sister space-craft Voyager 2 were destined for regions of space far from the sun where solar panels would not be feasible, so each was equipped with three radioisotope thermoelectric generators to produce electrical power for the space-craft systems and instruments.

Still operating in remote, cold and dark conditions 27 years later, the Voyagers owe their longevity to these generators, which produce electricity from the heat generated by the natural decay of plutonium dioxide produced at SRS.



Plutonium-238 fuel pellet.

## SRS IN BRIEF

### North Augusta 2000 receives \$50,000



North Augusta Star

North Augusta 2000 Chairman Tom Greene (right) accepts a check from WSRC President Bob Pedde. Also attending the event were Skip Grkovic (back left), treasurer of the community development group; Kathy Gilliland, its executive director; Dave Belkoski, board member of the 2000 group; and Keith Wood, director, WSRC Public Affairs.

Westinghouse Savannah River Company officials recently presented the North Augusta 2000 organization with a check for \$50,000.

The donation was the fourth installment of a \$300,000 pledge by WSRC to support community programs in North Augusta.

There are four primary areas that the North Augusta 2000 programs are attempting to strengthen – quality of life, economic development, education and parks and recreation.

"Our employees live in this community," said Bob Pedde. "We are a partner with North Augusta 2000."

### SRS Summer Food Drive raises over \$10,000

Final results showed that the Projects, Design, and Construction Services (PD&CS) and Soil and Groundwater Closure Projects organizations at the Savannah River Site jointly raised \$10,254, in addition to food items, recently in their annual summer food drive for the Golden Harvest Food Bank.

The SRS summer food drive is one of Golden Harvest Food Bank's largest fund-raisers in the local community.

According to long-time PD&CS food drive chair Sheri Still, the food drive has yielded more than \$177,000 to Golden Harvest.

"We're proud to be able to continue our effort to fight hunger in the Central Savannah River Area. Unfortunately, hunger is far more widespread in the area than most people realize. As employees at SRS we want to do our part to face and solve these problems," Still said.

Golden Harvest is a locally-supported, nonprofit, charitable food distribution center that provides grocery products to the hungry through its member agencies. Its service area encompasses 25 counties within Georgia and South Carolina.



Sheri Still, SRS food drive chair (left), and Cary Milliner, WSRC Manager of Construction Operations & Services (center), present a check for the summer drive's proceeds to Laurie Harmon, Golden Harvest Food Bank.

### Modern Pit Facility Team wins DOE award for excellence

Members of the Savannah River Site Modern Pit Facility Project Team have received the prestigious Department of Energy National Nuclear Security Administration (NNSA) Defense Programs Award of Excellence. The Westinghouse Savannah River Company, Bechtel Savannah River Incorporated and Washington Safety Management Solutions team was cited for its "consistent high-level of performance and innovative contributions to NNSA's success in meeting project deliverables, ensuring product quality and cost savings."



WSRC Modern Pit Facility Manager John Veldman (left) receives the DP Award of Excellence from Michael Mitchell, NNSA Project Director for the Modern Pit Facility.

The award cited that the Savannah River Site team has provided the National Nuclear Security Administration a product that represents increased quality, productivity and cost savings, not only for the eventual facility, but also for the project implementation.

The Savannah River Site's Modern Pit Facility project addresses a critical gap in the long-term nuclear readiness of the United States, namely the lack of capability to manufacture plutonium pits with sufficient capacity to support the stockpile—a gap that has existed follow-

ing the shutdown of the Rocky Flats Plant (Denver, Colorado) in 1989.

### Safety Conference assists public and employees

The 2005 Safety Conference, recently held at USC-Aiken, was an overwhelming success.

This year's theme was "Chart Your Course with Safety," and featured Paul Kirkpatrick, a Payload Safety Engineering Manager with NASA. Mr. Kirkpatrick provided the keynote address each morning, and also conducted a breakout session on NASA payload safety. His message focused on the basics of safety being similar, no matter how different the project. His NASA photos were unique, and a short video of a shuttle launch showed close-up views the general public would not have seen before.



Numerous SRS employees volunteer each year to ensure a successful Safety Conference.

Under Extreme Conditions, the Site's Time Out Program, Hazard Analysis, Chart Your Course with Safety and NASA Payload Safety.

The exhibits included site activities as well as exhibits from businesses across the CSRA. The 50-plus exhibits featured games, demonstrations and give-aways, but all focused on safety.

Tuesday and Wednesday daytime sessions were specifically for site employees. While a record was set Tuesday evening with over 700 people attending family night, an event open to the public. Many of the Tuesday night exhibits were interac-

tive, aimed toward entertaining children and always providing safety-related information.

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## SRS IN BRIEF

### 16,000 drums of nuclear waste shipped to New Mexico

Recently, Westinghouse Savannah River Company's TRU (transuranic) Program celebrated another milestone in the removal of nuclear waste from the site, shipping 16,000 drums to the Waste Isolation Pilot Plant (WIPP) in New Mexico.

The TRU Program has made over 500 shipments to WIPP, completed the target case objective 18 months ahead of the originally scheduled date, and reduced the legacy TRU waste volume at Savannah River Site (SRS) by a third. But, most importantly, the TRU Program team reached all these goals with zero reportable safety events.

When it began shipping TRU waste to WIPP, SRS had 12,000 cubic meters of stored waste. Original plans called for shipping all of this

legacy TRU waste to WIPP by the year 2034. In 2002, however, the site adopted aggressive new goals for accelerating cleanup activities. The site now expects to finish moving this waste into safe permanent disposal at WIPP by 2014, twenty years ahead of schedule, saving the taxpayer \$700 million.

DOE-SR Manager Jeff Allison praised all who made these achievements possible and reminded everyone that SRS will continue to be challenged to accelerate TRU waste shipments to support the investment DOE has made in WIPP. Mr. Allison reminded everyone that safety continues to be the vital element in the entire process. It is even more important today to continue to understand and analyze the hazards with handling TRU waste and realize that the hazards may change, he said.



Tammy Clark and Ken Harley load TRU waste into a shipping container destined for New Mexico.

The SRS Update is published monthly by Westinghouse Savannah River Company. If you have questions or comments about any of the articles, call 803.952.9583. Change of Address? Notify the WSRC Service Center: [service-center@srs.gov](mailto:service-center@srs.gov) or PSSC Bldg. 703-47A, Aiken, SC 29808



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